# Complete Summary

## GUIDELINE TITLE

Antenatal fetal surveillance. In: Fetal health surveillance: antepartum and intrapartum consensus guideline.

## BIBLIOGRAPHIC SOURCE(S)

Antenatal fetal surveillance. In: Fetal health surveillance: antepartum and intrapartum consensus guideline. J Obstet Gynaecol Can 2007 Sep;29(9 Suppl 4):S9-23.

## GUIDELINE STATUS

This is the current release of the guideline.

## COMPLETE SUMMARY CONTENT



## SCOPE

### DISEASE/CONDITION(S)

- Pregnancy
- Labor
- Perinatal complications

### GUIDELINE CATEGORY

Evaluation
Management
Prevention
Risk Assessment
Screening

## CLINICAL SPECIALTY

Family Practice
Obstetrics and Gynecology
Pediatrics
Preventive Medicine

## INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Nurses
Physician Assistants
Physicians

## GUIDELINE OBJECTIVE(S)

- To provide new recommendations pertaining to the application and documentation of fetal surveillance in the antepartum and intrapartum period that will decrease the incidence of birth asphyxia while maintaining the lowest possible rate of obstetrical intervention
- To outline appropriate antenatal and intrapartum fetal surveillance techniques for healthy women without risk for adverse perinatal outcome
- To identify specific patient populations expected to benefit from antenatal and intrapartum testing and to outline available testing techniques that could be appropriate
- To promote a consistent classification system for antenatal and intrapartum cardiotocography
- To promote clarity and consistency in communicating and managing electronic fetal heart tracing findings

## TARGET POPULATION

- Pregnant women with and without factors for adverse perinatal outcomes
- Unborn fetuses

## INTERVENTIONS AND PRACTICES CONSIDERED

1. Fetal movement count
2. Nonstress testing
3. Contraction stress test
4. Biophysical profile
5. Sonographic assessment of fetal behaviours and/or amniotic fluid volume
6. Uterine artery Doppler
7. Umbilical artery Doppler

## MAJOR OUTCOMES CONSIDERED

- Antenatal and intrapartum fetal morbidity
- Antenatal and intrapartum fetal mortality
- Birth asphyxia

- Rates of operative and other labour interventions

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

### DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

A comprehensive review of randomized controlled trials published between January 1996 and March 2007 was undertaken, and MEDLINE and the Cochrane Database were used to search the literature for all new studies on fetal surveillance both antepartum and intrapartum.

### NUMBER OF SOURCE DOCUMENTS

Not stated

### METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

### RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

**Quality of Evidence Assessment***

I: Evidence obtained from at least one properly designed randomized controlled trial.

II-1: Evidence obtained from well-designed controlled trials without randomization.

II-2: Evidence obtained from well-designed cohort (prospective or retrospective) or case–control analytic studies, preferably from more than one center or research group.

II-3: Evidence obtained from comparison between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be regarded as this type of evidence.

III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

*The quality of evidence reported in these guidelines has been adapted from The Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.

### METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

## DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

The level of evidence has been determined using the criteria and classifications of the Canadian Task Force on Preventive Health Care.

## METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

## DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

## RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

### Classification of Recommendations †

A. There is good evidence to recommend the clinical preventive action

B. There is fair evidence to recommend the clinical preventive action

C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making

D. There is fair evidence to recommend against the clinical preventive action

E. There is good evidence to recommend against the clinical preventive action

I. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making

† Recommendations included in these guidelines have been adapted from the Classification of Recommendations criteria described in the Canadian Task Force on Preventive Health Care.

## COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

## METHOD OF GUIDELINE VALIDATION

Internal Peer Review

## DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

This guideline has been reviewed and approved by the Maternal-Fetal Medicine Committee, the Clinical Obstetrics Committee, and the Executive and Council of the Society of Obstetricians and Gynaecologists of Canada.

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

The grades of recommendations (A-E and I) and levels of evidence (I, II-1, II-2, II-3, and III) are defined at the end of the "Major Recommendations" field.

#### Fetal Movement Counting

1. Daily monitoring of fetal movements starting at 26 to 32 weeks should be done in all pregnancies ***with*** risk factors for adverse perinatal outcome. **(I-A)**
2. Healthy pregnant women ***without*** risk factors for adverse perinatal outcomes should be made aware of the significance of fetal movements in the third trimester and asked to perform a fetal movement count if they perceive decreased movements. **(I-B)**
3. Women who do not perceive six movements in an interval of two hours require further antenatal testing and should contact their caregivers or hospital as soon as possible. **(III-B)**
4. Women who report decreased fetal movements (< 6 distinct movements within 2 hours) should have a complete evaluation of maternal and fetal status, including non-stress test and/or biophysical profile. Prior to considering an intervention for fetal well-being, an anatomical scan to rule out a fetal malformation should be done, if one has not already been done. Management should be based upon the following:
    - Non-stress test is normal and there are no risk factors: the woman should continue with daily fetal movement counting. **(III-B)**
    - Non-stress test is normal and risk factors or clinical suspicion of intrauterine growth restriction/oligohydramnios is identified: an ultrasound for either full biophysical profile or amniotic fluid volume assessment within 24 hours. The woman should continue with daily fetal movement counting. **(III-B)**
    - Non-stress test is atypical/abnormal: further testing (biophysical profile and/or contraction stress test and assessment of amniotic fluid volume) should be performed as soon as possible. **(III-B)**

#### Non-Stress Test

1. Antepartum non-stress testing may be considered when risk factors for adverse perinatal outcome are present. **(III-B)**
2. In the presence of a normal non-stress test, usual fetal movement patterns, and absence of suspected oligohydramnios, it is not necessary to conduct a biophysical profile or contraction stress test. **(III-B)**
3. A normal non-stress test should be classified and documented by an appropriately trained and designated individual as soon as possible, (ideally within 24 hours). For atypical or abnormal non-stress tests, the nurse should inform the attending physician (or primary care provider) at the time that the classification is apparent. An abnormal non-stress test should be viewed by

the attending physician (or primary care provider) and documented immediately. **(III-B)**

**Contraction Stress Test**

1. The contraction stress test should be considered in the presence of an atypical non-stress test as a proxy for the adequacy of intrapartum uteroplacental function and, together with the clinical circumstances, will aid in decision making about timing and mode of delivery. **(III-B)**
2. The contraction stress test should ***not*** be performed when vaginal delivery is contraindicated. **(III-B)**
3. The contraction stress test should be performed in a setting where emergency Caesarean section is available. **(III-B)**

**Biophysical Profile**

1. In pregnancies at increased risk for adverse perinatal outcome and where facilities and expertise exist, biophysical profile is recommended for evaluation of fetal well-being. **(I-A)**
2. When an abnormal biophysical profile is obtained, the responsible physician or delegate should be informed immediately. Further management will be determined by the overall clinical situation. **(III-B)**

**Uterine Artery Doppler**

1. Where facilities and expertise exist, uterine artery Doppler may be performed at the time of the 17 to 22 weeks' gestation detailed anatomical ultrasound scan in women with the following factors for adverse perinatal outcome. **(II-A)**
2. Women with a positive uterine artery Doppler screen should have the following:
    - A double marker screen (for alpha-fetoprotein and beta human chorionic gonadotrophin [hCG]) if at or before 18 weeks' gestation. **(III-C)**
    - A second uterine artery Doppler at 24 to 26 weeks. If the uterine artery Doppler is positive at the second scan, the woman should be referred to a maternal-fetal medicine specialist for management. **(III-C)**

**Umbilical Artery Doppler**

1. Umbilical artery Doppler should not be used as a screening tool in healthy pregnancies, as it has not been shown to be of value in this group. **(I-A)**
2. Umbilical artery Doppler should be available for assessment of the fetal placental circulation in pregnant women with suspected placental insufficiency. **(I-A)** Fetal umbilical artery Doppler assessment should be considered (1) at time of referral for suspected growth restriction, or (2) during follow-up for suspected placental pathology.
3. Depending on other clinical factors, reduced, absent, or reversed umbilical artery end-diastolic flow is an indication for enhanced fetal surveillance or delivery. If delivery is delayed to improve fetal lung maturity with maternal

administration of glucocorticoids, intensive fetal surveillance until delivery is suggested for those fetuses with reversed end-diastolic flow. **(II-1B)**

**Definitions**:

**Levels of Evidence***

I: Evidence obtained from at least one properly randomized controlled trial.

II-1: Evidence obtained from well-designed controlled trials without randomization.

II-2: Evidence obtained from well-designed cohort or case–control studies, preferably from more than one center or research group.

II-3: Evidence obtained from comparison between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be regarded as this type of evidence.

III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

*The quality of evidence reported in these guidelines has been adapted from The Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.

**Grades of Recommendations †**

A. There is good evidence to recommend the clinical preventive action

B. There is fair evidence to recommend the clinical preventive action

C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making

D. There is fair evidence to recommend against the clinical preventive action

E. There is good evidence to recommend against the clinical preventive action

I. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making

† Recommendations included in these guidelines have been adapted from the Classification of Recommendations criteria described in the Canadian Task Force on Preventive Health Care.

## CLINICAL ALGORITHM(S)

An algorithm for fetal movement is provided in the original guideline document.

## EVIDENCE SUPPORTING THE RECOMMENDATIONS

### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

- Increased identification of specific patient populations expected to benefit from antenatal and intrapartum testing
- Appropriate antenatal and intrapartum fetal surveillance pregnant women and reduction of perinatal morbidity and mortality
- Decreased incidence of birth asphyxia while maintaining the lowest possible rate of obstetrical intervention
- Use of a consistent classification system for antenatal and intrapartum cardiotocography
- Improved clarity and consistency in communicating and managing electronic fetal heart tracing findings

### POTENTIAL HARMS

A contraction stress test should be performed in hospital where emergency Caesarean section is available.

## CONTRAINDICATIONS

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The contraction stress test should not be performed when vaginal delivery is contraindicated or below the gestational age at which intervention would be made on behalf of the fetus if abnormal (generally 24 weeks).

## QUALIFYING STATEMENTS

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This guideline reflects emerging clinical and scientific advances as of the date issued and are subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Local institutions can dictate amendments to these opinions. They should be well documented if modified at the local level. None of these contents may be reproduced in any form without prior written permission of the Society of Obstetricians and Gynaecologists of Canada (SOGC).

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

### IMPLEMENTATION TOOLS

Clinical Algorithm

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Getting Better
Staying Healthy

### IOM DOMAIN

Effectiveness
Safety
Timeliness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Antenatal fetal surveillance. In: Fetal health surveillance: antepartum and intrapartum consensus guideline. J Obstet Gynaecol Can 2007 Sep;29(9 Suppl 4):S9-23.

### ADAPTATION

Not applicable: The guideline was not adapted from another source.

### DATE RELEASED

2007 Sep

### GUIDELINE DEVELOPER(S)

Society of Obstetricians and Gynaecologists of Canada - Medical Specialty Society

### SOURCE(S) OF FUNDING

Society of Obstetricians and Gynaecologists of Canada. This consensus was partly supported by an unrestricted educational grant from the British Columbia Perinatal Health Program.

## GUIDELINE COMMITTEE

Fetal Health Surveillance Consensus Committee, Clinical Obstetrics Committee

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## FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Disclosure statements have been received from all members of the committees.

## GUIDELINE STATUS

This is the current release of the guideline.

## GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Society of Obstetricians and Gynaecologists of Canada Web site.

Print copies: Available from the Society of Obstetricians and Gynaecologists of Canada, La société des obstétriciens et gynécologues du Canada (SOGC) 780 promenade Echo Drive Ottawa, ON K1S 5R7 (Canada); Phone: 1-800-561-2416

## AVAILABILITY OF COMPANION DOCUMENTS

None available

## PATIENT RESOURCES

None available

## NGC STATUS

This NGC summary was completed by ECRI Institute on July 8, 2009. The information was verified by the guideline developer on July 14, 2009.

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